To 88/

APOLLO 8 MISSION COMMENTARY, 12/21/68, CST: 5:21A 1/1

PAO This is Apollo/Saturn Launch Control, T-1 hour 13 minutes and counting. The boost protective cover was just place atop the hatch on the Apollo 8 spacecraft just several minutes ago, and the crew in the white room are now securing the white room area. They've been alerted by the Spacecraft Test Conductor to secure the area in preparation for their departure. Once the crew does depart at a designated time the swing arm that is now attached to the spacecraft with the white room at its top will be moved some 3 feet, actually 12 degrees, from the spacecraft and it will remain in that standby position until the T-5 minute in the coundown when the swing arm is retracted fully to the side of the umbilical tower at the pad. The purpose here is to have the white room standing close by in the event an emergency condition developed which would require the astronauts to depart the spacecraft we could bring the white room in just from 3 feet away. It is fully retracted at the 5 minute mark in the coundown. The astronauts aboard the spacecraft now participating in this test of the stabilization and control system of the Apollo 8 spacecraft. As they move their hand controllers, which would provide maneuvers in space, we're checking the performance here on the ground. All aspects of the mission still are GO, weather is satisfactory, the various tracking elements all GO at this time. T-1 hour 28 minutes 20 seconds and counting, this is Launch Control.

Transcripción del Tape 36/2

END OF TAPE

PAO This is Apollo/Saturn Launch Control at T-1 hour 21 minutes 07 seconds and counting, our countdown continuing and still aiming toward the planned lift-off time at 7:51 am Eastern Standard Time. In fact, it's been going very well and some functions are actually ahead of the count-down procedures at this time. The prime crew for the Apollo 8 mission, astronauts Frank Borman, Jim Lovell, and Bill Anders are aboard the spacecraft, the hatch has been closed, and the boost protective cover has been in place. The close-out crew at the 320-foot level at the pad above the launch base are now securing the White Room that's attached to the space-craft. The White Room will later be removed in the count-down. Our countdown still going satisfactorily. At this point, Spacecraft Test Conductor Dick Proffitt, participating with the astronauts in some checks of the stabilization and control system of the spacecraft itself. During this test, the astronauts actually maneuver the hand controllers aboard the spacecraft. The hand controllers are used to maneuver the spacecraft in flight. This is Launch Control -

END OF TAPE

PAO This is Apollo Saturn launch control at T minus 1 hour 14 minutes and counting. The close out crew at the 320 foot level - the spacecraft level at the launch pad now has departed from the white room and count down is still proceeding satisfactorily at this time. In progress here in the firing room are some major tracking checks in progress at this time. These are checks working with the Air Force Eastern Test Range checking out the tracking beacons and the instrument unit of the Saturn V launch vehicle. The crew here in the firing room are also performing some telemetry checks at this time and calibrations to insure that the readouts that we get from the launch vehicle in flight will actually be correct ones. Our countdown has been going very satisfactorily. Now at 1 hour 13 minutes 6 seconds and counting on the Apollo 8 mission still aiming for the plan liftoff at 7:51 am eastern standard time on a flight direction of 72 degrees. This is launch control.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/21/68, CST: 5:36A 4/1

PAO This is Apollo Saturn Launch Control our countdown for the Apollo 8 mission is proceeding satisfactorily at this time. At T minus 1 hour 4 minutes 52 seconds and counting. Just a matter of minutes ago the spacecraft commander Frank Borman asked spacecraft test conductor Dick Proffitt hows the weather out there and Proffitt reported that the weather looks real clear at this time. Our countdown is still proceeding satisfactorily. About 10 minutes from this time we expect we will pull back the swing arm that is still attached to the Apollo 8 spacecraft at this time. This is swing arm 9and it's the top swing arm at the pad at this time at the 320 foot level, the white room is attached to the tip of this swing arm. When the arm is pulled back it will first be taken back to a standby position some 3 feet from the spacecraft, actually 12 degrees from the spacecraft. The arm will be fully retracted at the T minus 5 minute mark in the count. In fact while we were making this anouncement the spacecraft test conductor just advised Framk Borman that the arm, in fact, would come back about 10 minutes early in the count which would be at about the 55 minute mark. Checkouts of the various tracking systems in the Saturn V launch vehicle are continuing and coming up shortly will also be some command checks from the Mission Control Center in Houston. This is the system by which Mission Control Center, Houston can send real time commands to the launch vehicle during the powered phase of flight. We check out the systems to be sure that the signals can get through. We are now at T minus 1 hour 3 minutes 16 seconds and counting, still aiming toward our plan liftoff time at 7;51 AM Eastern Standard Time. The is launch control.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/21/68, T-61 min, CST 5:52a 5/1

PAO This Apollo/Saturn Launch Control, T-61 minutes and counting. Our countdown so far is proceeding satisfactorily. The Spacecraft Test Conductor has just been advised that area at Pad A is now cleared and we will be pulling back the spacecraft swing arm to its parked position about 5 minutes from this time. Tracking and telemetry checks still in progress in the Firing Room, and all is going well with the Apollo 8 countdown at this time, still aiming for our planned lift-off at 7:51 am Eastern Standard Time on a flight azimuth, or direction, of 72 degrees. This is Launch Control.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/21/68, T-56 min, CST 5:55a 6/1

PAO This is Apollo/Saturn Launch Control at T-56 minutes 23 seconds and counting. The spacecraft swing arm, arm number 9, now has been retracted from the Apollo 8 spacecraft. It is being placed in its standby, or park, position and will be located some 3 to 5 feet away from the spacecraft hatch. Once this is accomplished, within a matter of minutes, we will arm the 155 pound thrust launch escape tower atop the command module. The swing arm has now been pulled to its standby position. It will be fully retracted at T-5 minutes in the count. The purpose, of course, is to have the White Room nearby in the event an emergency condition did occur that could require the astronauts to depart from the spacecraft. Once the arm is retracted, the escape tower is armed, in case of a catastrophic condition where an abort could be advised. Our countdown still proceeding satisfactorily at T-55 minutes 18 seconds and counting. This is Launch Control.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/21/68, CST: 5:36 A 7/1

POA This is Apollo Saturn Launch Control at T minus 48 minutes and counting, T minutes 48 and we have go for the Apollo 8 countdown at this time. The crew on the spacecraft still performing some final checks. Astronaut Frank Borman, the spacecraft commander, just a few minutes ago gave a weather report of his own when he reported that the three man crew could barely see what looked like some pink couds out the window. Borman had earlier asked for the weather report from spacecraft test conductor Proffitt Meanwhile here in the firing room at the launch control center some three and one half miles from the launch pad, the countdown is still progressing satisfactorily here and the crew gearing up for some final checks of the range safety command destruct system. These are the destruct elements aboard the various stages of the vehicle that would destroy the vehicle in flight if required, if vehicle went off its trajectory. Of course the astronauts would be aborted from the vehicle if such an event did occur. During this period working with the Air Force Eastern Test Range tracking elements we do check out the command safety recievers to insure if such a condition were required the abort system and the destruct system would actually be able to receive the signals and accomplish the job. The countdown is still proceeding, we still aiming toward 7:51 AM Eastern Standard Time. This is Launch Control.

END OF TAPE

PAO This is Apollo/SAturn Launch Control at T-39 minutes and counting, T-39, and we are GO for our countdown for the Apollo 8 mission to the moon at this time. Just in progress as this announcement came up was another key milestone in our countdown preparations, the power transfer test. This is where we go from external power to the flight batteries aboard the Saturn V launch vehicle to assure that they are all working properly. Then in order to conserve these batteries we return again to external power. The final switch to internal power on the batteries occurs about the 50 second in the count. There are some 14 batteries in the Saturn V. The Apollo 8 crew of astronauts Frank Borman, Jim Lovell, and Bill Anders standing by in the spacecraft as this test is in progress. T-38 minutes 6 seconds and counting, this is Launch Control,

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/21/68, T-31 min, CST 6:20a 9/1

PAO This is Apollo/Saturn Launch Control at T-31 minutes and counting, T-30 and our countdown proceeding satisfactorily, still aiming our planned lift-off time of 7:51 am Eastern Standard Time. The Apollo 8 crew, astronauts Frank Borman, Jim Lovell, and Bill Anders standing by in their spacecraft, 320 feet above the launcher base at Pad A, Complex 39 here at the Kennedy Space Center. The astronauts are standing by for another major function that will be coming up shortly and that is pressurization of the propellant for the engines they will use in space. These are thrusters, so-called quad thrusters, there are 16 of them, located on the service module portion of the spacecraft. These are the thrusters that enable them to maneuver in space. We appear to have had a successful power transfer test with the launch vehicle, in which we went to internal power on the flight batteries, but then we turned to external power in order to conserve those batteries. Just a moment ago, astronaut Frank Borman asked his Spacecraft Test Conductor how the launch vehicle was doing and the report that came back was the launch vehicle is doing fine. The overall countdown doing fine at this time. We are go for weather, all the tracking elements ready, as well as the launch vehicle and spacecraft, here at Pad 39. This is Launch Control.

END OF TAPE

PAO This is Apollo/Saturn Launch Control at T-26 minutes and counting. We are proceeding at this time. In progress at this time, we are pressurizing the propellant for the spacecraft engine systems that would be used in a space environment. Astronaut Jim Lovell, the man who sits in the middle seat and who is the Command Module pilot, is reporting back to spacecraft test conductor Dick Proffitt on the status of the propellants. We pressurize these propellants with helium. The countdown has been going very well since it was picked up at 10:51 p.m. eastern standard time last night. Shortly before we resumed the count the 9.8 million pound mobile service structure was moved to its park position some 7000 feet from the pad. About an hour later we began the propellant loading of the Saturn V launch vehicle. IN some 4 and a half hours we loaded close to a million gallons total of liquid oxygen and liquid nitrogen aboard the 3 stages of the Saturn V. We now have a vehicle standing 360 feet, 363 feet that is, and weighing 6.2 million pounds on the launch pad here at the Kennedy Space Center. We are continuing a top off the liquid oxygen and liquid nitrogen supplies because they must be maintained under extremely cold temperatures. They will continue to boil off and we will continue to replenish the supply down to the final minutes of the count. Astronauts Frank Borman, Jim Lovell, and Bill Anders were awakened in their crew quarters this morning at 2:36 a.m. Eastern Standard time. They went down the hall from the crew quarters here at the Kennedy Space Center and took a physical examination, a brief launch day examination, and were declared physically fit by the 3 examining physicians, Dr.Allen Harter, Dr. Jerry Joiner, and Dr. Jack Teegan. The astronauts then sat down to breakfast. They had a menu of filet mignon, scrambled eggs, toast, coffee, and tea. Guests at the breakfast included George Low, Director, Apollo Program Director at the Manned Spacecraft Center; Donald K. Slayton who is Director of Flight Crew Operations at the Manned Spacecraft Center; two of the backup pilots for the Apollo 8 mission, Astronauts Neil Armstrong and Buzz Aldrin; Astronaut Jack Schmidt also attended the breakfast. Following the breakfast, the astronauts went to the suit room where they donned their spaced suits. The crew departed from the crew quarters at 4:32 a.m. this morning, and began to board the spacecraft starting at 4:58 a.m. at the 320 foot level. First over the sill was the commander, Astronaut Frank Borman. He was followed by the Lunar Module Pilot, Astronaut Bill Anders at 5:02 a.m., and finally the man who sits in the middle seat, Jim Lovell, came aboard at 5:07 a.m. The hatch on the Apollo 8 spacecraft was closed at 5:34 a.m. Since tha time our

PAO countdown has been progressing very satisfactorily. We are still GO for launch attempt at 7:51 a.m. eastern standard time. This is Launch Control.

END OF TAPE

"said the Commentator Jack King)

APOLLO 8 MISSION COMMENTARY, 12/21/68, T-21 min, CST 6:30a 11/1

pick up on yellow p. 13

PAO This is Apollo/Saturn Launch Control at T-21 minutes and counting and we are go for the Apollo 8 mission at this time. We really have a beautiful morning for the flight to the moon. The weather conditions are very satisfactory for a launch attempt. Surface winds in the area are from the northwest at 7 knots, the temperature is about 60 degrees. We appear to have some scattered clouds from 10 to 12,000 feet high." All aspects of the mission are go at this time. Weather is also satisfactory in around-the-world tracks where the contingency areas will be located. Weather is satisfactory in both the Atlantic and Pacific Oceans. We are still aiming toward a planned lift-off time of 7:51 am Eastern Standard Time. Coming up shortly will be a transfer to full internal power aboard the Apollo 8 spacecraft. This is going full on the fuel cells and removing an external power that had been sharing a load earlier. This is Launch Control.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/21/68, CST: 6:35 A 12/1

PAO This is Apollo Saturn Launch Control at T minus 16 minutes and counting. The Apollo 8 space vehicle is GO for our plan liftoff at this time. We have just completed our transfer to full internal power with the fuel cells for the Apollo 8 spacecraft. This was confirmed by spacecraft commander, Frank Borman, Final checks from the flight azimuth going on at this time and we're also syncronizing the clocks in the spacecraft with the mission control center in Houston. Following are some of the highlights that will be coming up with the final phases of the count. We'll have a final status check at about 5 minutes and 30 seconds and at the 5 minute mark the Apollo access arm, the top arm will be fully retracted to its fall back position. The countdown sequencer will be armed at 4 minute and 30 seconds and we'll get a clearance for launch from the range at the 4 minutes mark in the count. The key event will come at 3 minutes and 6 seconds. It's identified in the procedures as the firing command and it's the start of an automatic sequence. It starts at 3 minutes 6 seconds and leads up to the ignition of the five engines in the first stage of the Saturn V. Those engines, the sequence, the engine ignition, will start at 8.9 seconds. As we build up the thrust, we should get a commit that we have satisfactory thrust coming out of all five engines and it build up a thrust level close to seven and a half million pounds of thrust required for this rocket. We should get a liftoff at zero. We are now T minus 14 minutes 22 seconds and counting. All aspects of the mission, GO at this time. This is Launch Control

END OF TAPE

PAO This is Apollo/Saturn Launch Control at T-11 minutes and counting, T-11 and that count is still GO at this time. Coming up shortly, about 5 minutes from this time actually, we will retract to its full fallback position the spacecraft access arm, which is at the 320-foot level at the spacecraft. The astronauts, astronauts Frank Borman, Jim Lovell, and Bill anders, going through some final communications checks with the crew here in the Control Center. These are checks of the VHF communication, the very high frequency communications that will be used at the lift-off. We want assure ourselves that they will be operating satisfactorily. Also coming up, the astronaut crew will be busy on some final checks of astrocomm circuit, this is a special circuit in which abort recommendations could be given to the astronauts if the indications were received as such here in the Control Center some 3-1/2 miles from the launch pad. Also, Mission Control Center in Houston can send the same recommendation. We have now passed the 10-minute mark in our countdown. We are 9 minutes 51 seconds and counting, all aspects of the mission GO at this time. Still aiming for a launch time of 7:51 am Eastern Standard Time on a flight azimuth of 72 degrees. The flight azimuth has been verified in the instrument unit, the guidance system for the launch vehicle and we have also had an update to assure that we had the correct flight azimuth in the spacecraft. This has been confirmed by the crew and we are proceeding. T-9 minutes 21 seconds and counting, this is Launch Control.

END OF TAPE

Apollo 8 MISSION COMMENTARY, 12/21/68, GET 644 730p 14/1

CAPCOM 5, 4, 3, 2 - this is Apollo Saturn launch control C minus 7 minutes 30 seconds and counting, still aiming toward our planned liftoff time. The spacecraft's test conductor Dick Proffitt has just to completed a systems check of all elements concerning the spacecraft operations, all reported GO and there were three particularly strong and loud GO's from the three astronauts in the spacecraft 320 feet above the base of the launcher at complex 39. Jim Lovell reported just a few minutes ago that he could see a blue sky and it looked like the sun is out. The spacecraft test conductor reported that - that it's a very fine day. We are at T minus 6 hours 50 minutes 7 minutes 50 seconds and counting and we are proceeding at this time. This is launch control.

END OF TAPE

PAO This is Apollo/Saturn Launch Control at 5 minutes 30 seconds and our count is still GO at this time. We just completed further status checks here in the Firing Room at the Control Center. Here in the Control Center, we have had our status checks and the range has given a GO as has the Launch Director Rocko Petrone. We are still counting and are GO coming up on the 5-minute mark in the count. Mark T-5 minutes and counting, T-5. At this point, the Apollo access arm should be coming back and it is now moving back at 320-foot level to its fully retracted position high atop the tower at Pad A. Our countdown still proceeding at this time. At the 4-minute mark in the countdown, the overall count will be turned over the Launch Vehicle Test Conductor. Ray Roberts. The Launch Vehicle Test Conductor, will conduct the final 4 minutes as all different aspects move over to the Launch Vehicle Test Conductor's channel. The automatic sequence, as reported, will come in at the 3-minute and 6-second mark in the countdown. We are standing by at 4 minutes 16 seconds in counting. This is Launch Control.

PAO This is Launch Control coming up on 3 minutes and 30 seconds and counting. Mark T-3 minutes and 30 seconds and counting. We have completed our communications checks with the Apollo 8 astronauts in the cabin and the communications are GO. Coming up shortly will be in the automatic sequence, where we have a completely automatic checkout of the launch vehicle from 3 minutes and 6 seconds down. We have firing command. The firing command is in, we are now in the automatic sequence, T-3 minutes and counting. During this period, once we do get the firing command, the various tanks within the three stages of the Saturn V launch vehicle begin to pressurize. They must all be under pressure before ready to launch. We have a sequence status report here in the Control Room, it will give us readouts on the overall status of the space vehicle as we reach the terminal phases in the countdown. Now 2 minutes and 32 seconds and counting. Our status report indicates that all aspects are ready. The instrument unit is ready, the spacecraft is ready - is ready. A final check of the emergency detection system, that ready light also on. First stage preparations are completed. Two minutes 15 seconds and counting, the tanks continuing to pressurize in the vehicle. Not as many reports coming now as we all stand by in the Launch Vehicle Test Conductor's channel. Coming up on the 2-minute mark in the Apollo 8 mission. Two minutes and counting. T-2 minutes and counting, we are still proceeding. We now have recorded that the first stage liquid oxygen tank has been pressurized and the pressure still building up. One minute 45 seconds and counting, we have a vehicle

weighing 6.2 million pounds on the pad. Interesting enough, some 1200 pounds of that weight is just frost on the side of the vehicle created by the extremely low temperatures of the propellant. ~~Coming up on 90 seconds~~. Mark T-90 seconds and counting. The Apollo 8 crew standing by, spacecraft commander Frank Borman, Jim Lovell, and Bill Anders. We now have a report that the liquid hydrogen tank in the first stage is pressurized. One minute 15 seconds, all third stage propellants pressurized at this time as we come up on the 60-second mark on a flight to the moon. T-60 seconds and counting, the vehicle is now completely pressurized. We are coming up on Apollo transfer shortly, T-50 seconds and counting. We have the power transfer and are now on the flight batteries in the launch vehicle. Forty-five seconds, final reports coming from Frank Borman at this time, a final look at the switch list aboard the -

END OF TAPE

PAO 5 seconds, final reports coming from Frank Borman at this time, final look at the switch list aboard the spacecraft. 35 second and counting. We'll lead up to a ignition sequence start at 8.9 seconds, which will lead up as we build up the thrust to a liftoff, if all goes well, at zero. We just passed the 25 second mark in the count, 20 seconds, all aspects we are still GO at this time. T-15, 14, 13, 12, 11, 10, 9, and we have ignition sequence start, the engines are on. 4, 3, 2, 1, 0, we have commit, we have liftoff, liftoff at 7:51 a.m. eastern standard time. We have cleared the tower -

PAO Tower clear at 13 seconds, 20 seconds now we get a loud and clear from Frank Borman. 32 seconds. Booster says the S-IC, the first stage, looks good. The crew confirms their progress at 50 seconds into the flight. One minute out and Mike Collins tells the crew, "We're looking good." One minute 15 seconds, and we're a little more than half a mile into the sky and about - nearly 4 miles down range. One minute 40 seconds, all looks great. A mile and 6/10th into the mission and Frank Borman has confirmed each event as it's been passed to him by Mike Collins at this point. The crew has been given a GO for staging. Inboard out on time Frank Borman says. The inboard engines. 2 minutes 25 seconds. We see an S-IC, the first stage cutoff, S-II has ignited, we can confirm, and the thrust looks good, all engines all sources show that second stage is burning perfectly. 2 minutes 51 seconds into the mission, and at 3 minutes into the flight the range safety console has been released at the Cape. 3 minutes into the flight we are 50 miles high and about 10 miles down range. 3 minutes 25 seconds we have verified that the tower has jettisoned. The crew has verified the tower has jettisoned. Frank Borman says staging was smooth and the ride now is even smoother. Coming up on 4 minutes into the flight and the communications thus far have been excellent. It's been a little sparse, but it's been quite sharp and clear. 70 miles altitude, and about 20 miles or more down range. Correction, let's make that 200 miles down range. Flight Director Cliff Charlesworth gets an enthusiastic GO from both trajectory and booster at 4 minutes 50 seconds into the flight. Mark, 5 minutes, and the crew is advised their trajectory and guidance are looking good and Frank Borman came back with a very chatty, "Thank you, Michael." He's talking to Michael Collins, who would be in the center seat today except for an operation several months ago. 5 minutes 20 seconds into the flight. 300 miles down range, we're nearly nearing 100 miles altitude, and everything looks just grand. And Collins gives the crew another GO on trajectory and guidance, which at this point are the most critical elements. At 6 minutes 10 seconds

PAO into the flight, our down range distance now 400 miles. Our velocity in feet per second, nearly 15 000 feet per second. We've achieved nearly 60 percent of the velocity required to make orbit. 57 percent right now, and we're 96.5 miles above the earth. The surgeon reports he likes everything he sees, 7 minutes into the flight, and we're nearing the second stage - nearing the point where we will drop off the second stage and light the third stage. That event is to come at about 8 minutes and 40 odd seconds into the flight. We have now achieved 70 percent of the velocity required to obtain orbit. Our present velocity is 18 600 feet per second, and we're 100 miles above the earth, 100 even. 625 miles down range. Coming up on 8 minutes, mark 8 minutes. 20 400 feet per second, 101.7 miles above the earth, 734 miles down range. And the crew is advised they look good for staging, and Borman says, "Same here." We've got S-II cutoff, we've got S-IVB ignition. Borman confirmed S-IVB ignition. And thrust looks good to us at 9 minutes into the flight. We now have 89 percent of the velocity required, we're 920 miles down range, and we're 9 minutes 20 seconds into the flight. Flight Dynamics Officer says our altitude is nominal

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/21/68, CST: 5:36 A 17/1

PAO The flight dynamics officier says our altitude is nominal which is the great conservative word for very nearly a perfect mission as nearly as we can observe at this point. Nine minutes 50 seconds and we've just gone to what we call mode 4 if any trouble should develope now we would go ahead and burn into orbit with our service prulsion engine. The crew is now being advised that we plan to cut off the third stage engine at 11 minutes 28 seconds into the flight, we're now at 10 minutes, 10 seconds. We are at 103.7 nautical miles above the earth, our velocity is at an even 24 000 feet per second, which is very, very close to orbital velocity, that's 95 percent of it and we're 1200 miles down range, which would put us a little bit out of Bermuda. Ten minutes and 50 seconds and we've heard from Bill Anders for the first time, he simply said, how do you read Houston." He gets a looking good comment from Mike Collins. Eleven minutes, 20 seconds, and we're hearing a little something from Jim Lovell, a reading from one of his meta gages. We have SECO says Frank Borman. SECO and I would call it 11 minutes, 30 seconds, that will be an estimate, 11 minutes, 30 seconds. Our launch digital data shows our velocity now, 25 577 feet per second. The data now has been reduced and we show an altitude of 102.5, and the crew has been given a GO for all but they responded enthusiastically that they too, in fact, were GO. Jim Lovell has just now read us down what he saw on his instrumentation, he's shows an apogee of 102.6, a perigee of 96.8 and a cut-off velocity of 25 560 feet per second. That's within a hundredths of a percentage point of what we are reading on our scales here in Houston. And now the crew has been advised, we have settled on an orbit of 103 apogee by 99 miles perigee. We were shooting for something a little close to 100 nautical miles circular. We have now the tape of the entire launch sequence and we will play it for you at this time.

SC The clock is running.
CAPCOM Roger, clock.
SC Roll and pitch program.
CAPCOM Roger.
SC How do you read Houston?
CAPCOM Loud and clear.
CAPCOM Mark mode 1 bravo, Apollo 8.
SC Mark mode 1 B.
CAPCOM Apollo 8, you are looking good.
SC Roger.
CAPCOM Mark mode 1 charlis, Apollo 8.
SC Mode 1 C.
CAPCOM Apollo 8, Houston, you are a GO for staging, over.

SC Roger.
SC Staging.
SC Have just complete them.
CAPCOM Roger, understand.
PAO This is Apollo Control here, 21 minutes, 41 seconds into the flight and we're out over the Canary's. The crew, which is, sounds likely strickly business. It's main spokesman during this pass in the last minute or two has been Jim Lovell and we will now begin that very anxious business of making sure that all of the systems are settled down and calabrating them. From all appearances they certainly are. The first one of major concern, of course, is the platform alignment. Right now, we think we see something on the order of a point two-hundredths or two-tenths of a degree out of alignment, which is nothing at all, that's alignment. The communication has been nothing short of outstanding. I don't recall a time of when the communication from a simulator was this sharp and this clear as it is today from this spacecraft. Here's how the conversation is going as we proceed across the Carary Islands.
CAPCOM Apollo 8, Houston through the Canary's. How do you read me?
SC You are loud and clear Houston over the Carary's.
CAPCOM Good, you are clear too. How is it going?
SC Fine, we seem to be going along very well. We noticed about a 10-pound Delta-V between the oxygen fuel in the SPS zone.
CAPCOM Apollo 8, Houston, that is normal, that's just about what we expected, over.
SC Roger. Standby for the (garble). Okay, main valve closed.
CAPCOM Apollo 8, Houston. Say again.
SC Negative, we didn't say anything. Go ahead Houston.
CAPCOM I think you were transmitting, Jim was transmitting and disregard.
SC Roger.
CAPCOM Apollo 8, Houston.
SC Go head Houston, Apollo 8.
CAPCOM Roger, you have one minute to LOS Carary's. Everything is looking good onboard the spacecraft and the S-IVB, we will see you over Tananarive at 37 minutes, over.
SC Roger, thank you Houston, Apollo 8.
CAPCOM Apollo 8, Houston, you have the tape recorder low bit rate, over.
SC Thank you.
CAPCOM You are welcome.

END OF TAPE

PAO This is Apollo Control Houston at 37 minutes into the flight. We are standing by, we expect contact to occur just momentarily through the Tananarive station. The surgeon reports during the launch phase that Frank Borman had a peak heart rate of 130 beats per second, that's fairly early on in the mission. 130 was his max. Now we have acquired the crew. Let's cut to the crew.

CAPCOM - still have you 103 by 99 on your orbit from my low speed data, and everything is looking good, over.

SC Roger.

PAO And this is Apollo Control. Much quieter pass than we expected, but perhaps it's understandable. The crew is quite busy, with their postorbital insertion checklist. Frank Borman, well, all three of them, have probably by now removed their helmets and gloves. We have not heard that locally confirmed, but I think it's a fair assumption. That event could have come as early as 15 minutes into the mission, while they were still out over the Atlantic. Borman would be probably now mounting a sighting instrument in his window. Lovell is working his navigation equipment, he has to jettison the cover off his optics through he observes stars and horizons. Anders performed a wide variety of systems tests, looks at all of his major systems, and does a quick check on the fuel cell purging operation. So it is safe to assume the crew is very busy. Again, Borman's heart rate, we had him on the biomed loop during launch, the peak rate was 130. We have confirmed to the crew that orbit we gave them shortly after insertion 103 by 99 stacks up and refines a good and acceptable and stable orbit. As soon as Lovell is able, he will go through a detailed instrument - inertial measurement alignment through several major computer programs. Now we are cutting back to some talk with the crew. Let's switch to that.

CAPCOM - 1 minute to LOS Tananarive. We will see you again over Carnarvon at 5209, over.

SC Roger. We do have the optic covers jettisoned (garble).

CAPCOM Roger. Optics cover jettisoned, thank you.

PAO And this is Apollo Control at 42 minutes into the flight. That will wrap up the communications from Tananarive. We will be back with them at 52, 10 minutes from now. 52 minutes into the flight, Carnarvon should acquire. This is Apollo Control Houston.

END OF TAPE

PAO This is Apollo Control Houston here at 55 minutes into the flight. We have switched our biomed harness selector to Bill Anders and we are watching him breathe and watching his heart beat here on the scope. We've also put in an establishing call with the crew. There has been no flow of conversation since that point but let's establish it in any case and come back when there is something more. Let's hear the tape.

CAPCOM Apollo 8, Houston.

SC Roger. I read you loud and clear.

CAPCOM Roger. You're loud and clear over Carnarvon. We would like to take DSE away from you for a second.

SC Roger. Go ahead.

CAPCOM Thank you.

SC Houston, this is Apollo 8.

CAPCOM Houston here, Apollo 8. Go ahead.

SC Roger. The torquing angles 00026, that is + 00026 + 00035 + 00119.

CAPCOM Roger. Apollo 8, Houston. Copy -- and copy + 00026 + 00035 + 00119.

SC Roger. We checked on stars 6 and 15 and the error was + 00001.

CAPCOM Sounds pretty good.

SC Pretty good for a beginner here.

CAPCOM Roger.

CAPCOM Apollo 8, Houston.

SC Roger, you are loud and clear.

CAPCOM Roger. You are loud and clear over Carnarvon. We would like to take the DSE away from you for a second.

SC Roger, go ahead.

CAPCOM Thank you.

PAO This is Apollo Control Houston. You heard Mike Collins say we want to take the DSE away from you. That is the onboard tape recorder. The ground wanted to check its function and is proceeding to as the spacecraft moves across southern Australia. Via Honeysuckle, we should have additional communications and we will just stand by for those.

END OF TAPE

PAO This is Apollo Control Houston at an hour and 4 minutes into the flight. Over the last couple of minutes, we've been - had a little whisper of a problem through the Honeysuckle station, Australia. It has been fixed. The problem was crew was not receiving us on the relay through Honeysuckle. We could hear them loud and clear but they were not receiving us. There was a period of about 2 minutes where they advised us several times of several readings, obviously in the blind and not getting the confirming information from our CAPCOM Mike Collins. The problem has been cleared up, I want to emphasize. Hawaii, this morning is receiving for the first time, received for the first time a live television picture of the launch and we understand from talking to some people out at the station at Pearl Harbor that they are quite enthusiastic about it. They plan to go out and try to watch the TLI burn which is to occur at 2 hours 50 minutes. It should occur almost directly over Hawaii, and under ideal lighting arrangements. The local time will be about 5:55 or 6 am. Darkness out on earth and just the first streaks of dawn. So if the clouds are cooperating, they may see it. We have some tape from the Honeysuckle pass, which will clarify the comm problem we had, which toward the end of the pass, gets altogether cleared up. Here is the tape.

SC Hello, Houston, Apollo 8. How do you read?

CAPCOM Loud and clear, Apollo 8. Houston, here. Apollo 8, Houston, loud and clear, over.

SC Houston, Apollo 8. How do you read?

CAPCOM Reading you loud and clear, Bill. How me?

SC Houston, Apollo 8. Over.

CAPCOM Apollo 8, Houston, loud and clear. Over. Apollo 8, Houston. Over. Apollo 8, this is Houston, over. Apollo 8, this is Houston, over. Apollo 8, this is Houston, over.

SC Houston, Apollo 8 on S-band and do you read? Everything is GO.

CAPCOM Roger, understand Apollo 8. Apollo 8, this is Houston, over.

SC Roger, Houston, read you loud and clear.

CAPCOM We are reading you loud and clear also, Bill. The problem here over Honeysuckle has been on the ground. Your spacecraft equipment is all working fine. We are going to have LOS in about a minute and we will pick you up over Guaymas at 12813, over.

SC Roger. 12813, thank you.

CAPCOM Roger. We are giving the DSE back to you, Apollo 8.

SC Roger, thank you.

END OF TAPE